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| 10/657,152 | 09/09/2003 | Isao Mochizuki | 117047 | 1896 |

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| EXAMINER |
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MOON, SEOKYUN

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| ART UNIT | PAPER NUMBER |
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2629

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 04/02/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/657,152 | Applicant(s) MOCHIZUKI ET AL. | |
| | Examiner Seokyun Moon | Art Unit 2629 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 18 is/are allowed.
- 6) ☒ Claim(s) 1,8,10,12,19-23,25-30 and 33 is/are rejected.
- 7) ☒ Claim(s) 2-7,9,11,13-17,24,31 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Claim Rejections under 35 U.S.C. 112

Claims 1, 8, 18 were rejected under 35 U.S.C. 112, second paragraph. By the Amendment mailed on January 16, 2007, the claims have been amended. Accordingly, the rejections are withdrawn.

2. Claim Rejections under 35 U.S.C. 102

The Applicants' arguments with respect to claims 1 and 27 have been considered but are moot in view of the new ground(s) of rejection.

3. Claim Rejections under 35 U.S.C. 103

The Applicants' arguments with respect to claim 33 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1, 8, 19, 22, 27, and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuki et al. (US 2002/0050980, herein after "Furuki") in view of Leman (US 2001/0054986, herein after "Leman").

As to **claim 1**, Furuki teaches an input device ("*keyboard input device*") [abstract] including:

a foldable keyboard including a first keyboard unit ("*first keyboard unit 2a*") [fig. 18], a second keyboard unit ("*second keyboard unit 2b*"), and a rotatable connecting part ("*unit hinge 4*") provided between the first and second keyboard units, so that the first keyboard and second keyboard units are rotated relative to a first axis to come apart from each other into an unfolded, horizontally arranged state through the connecting part for use of the keyboard [fig. 18], while the first and second keyboard units are rotated relative to the first axis to come close to each other into a closed, folded state through the connecting part for nonuse of the keyboard [fig. 17], and

a foldable flexible (rotatable in two directions as shown in fig. 19) display rotatably attached to one edge of the first or second keyboard unit in order to rotate relative to a second axis, the display being openable relative to a support point when the first and second keyboard units are in the horizontally arranged state and foldable relative to a support point when the first and second keyboard units are in the folded state.

Furuki does not teach that the second axis and the support point of the display are not at a same location.

However, Leman teaches an input device [figs. 1 and 2] including a foldable flexible (foldable and openable in various directions) display rotatably attached to one edge of a keyboard unit ("*102*") in order to rotate relative to a second axis, the display being openable and foldable relative to a support point, wherein the second axis and the support points are not at a same location.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display of the device of Furuki to have two separate display panels which are foldable relative to each other along the second axis and foldable relative to the keyboard at the

support point such that the second axis and the support points are not at a same location, as taught by Leman, in order to provide a larger display for the device of Furuki.

As to **claim 8**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for the input device to be used for a personal computer and specifying a computer unit to be located in the first or second keyboard unit.

Furuki teaches the input device being used for a personal computer [par. (0002) lines 1-2].

Furuki as modified by Leman does not expressly disclose a computer main unit provided in the first or second keyboard unit.

However, Examiner takes official notice that it is well known in the art to implement a computer main unit such as CPU in a keyboard unit rather than to implement in a display unit.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the device of Furuki as modified by Leman to include a computer main unit in the first or second keyboard unit, in order to reduce the weight of the display, thus to reduce the stress applied on the linkage part connecting the keyboard units and the display.

As to **claims 19 and 22**, Furuki as modified by Leman teaches the flexible display being widened from the folded state to a state extending in a direction parallel to a long side of the keyboard [Leman: figs. 1 and 2] in which the first and second keyboard units are horizontally arranged.

As to **claim 27**, Furuki as modified by Leman [Furuki: fig. 1] teaches the first ("*first keyboard unit 2a*") and second keyboard units ("*second keyboard unit 2b*") each are of a rectangular shape having long sides and short sides, and the flexible display being folded along the long sides [Furuki: figs. 17 and 18].

As to **claim 30**, Furuki as modified by Leman teaches the first and second keyboard units each are of a rectangular shape having long sides and short sides, and the flexible display being folded along the long sides [Furuki: figs. 17 and 18].

Furuki as modified by Leman does not teach the flexible display being folded along the short sides.

However, the courts have held that a mere change of size of the components of the device is generally recognized as being within the level of ordinary skill in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the dimensions of the keyboard units such that the display is folded along the short sides in order to allow various alternative designs of the device.

6. **Claims 10 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuki and Leman as applied to claims 1, 8, 19, 22, 27, and 30 above, and further in view of Noguchi et al. (US 4,341,980, herein after "Noguchi").

Furuki as modified by Leman teaches the flexible display having a rear surface (Furuki: back surface of the "*flat display portion 17*") [Furuki: fig. 18].

Furuki as modified by Leman does not expressly disclose a resilient metallic thin plate being laminated to the rear surface of the display.

However, Noguchi [fig. 2] teaches a rear surface ("*back base plate 11*") of a display device being made of resilient metallic plate ("*elastic metal plate*") [col. 4 lines 59-60].

It would have been obvious to one of ordinary skill in the art at the time of the invention to laminate a resilient or an elastic metallic plate on the rear surface of the display of Furuki as modified by Leman, as taught by Noguchi, in order to absorb any stress/pressure applied on the display [col. 9 lines 23-27].

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7. **Claims 20, 21, 23, 25, 26, 28, and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuki and Leman as applied to claims 1, 8, 19, 22, 27, and 30 above, and further in view of Katz (US 6,008,220).

As to **claim 20**, Furuki as modified by Leman teaches the keyboard having a first length in the horizontally arranged state of the first and second keyboard units [Furuki: fig. 18], and the flexible display being folded, due to the flexibility, to another length substantially equal to another length [Leman: fig. 2].

Furuki as modified by Leman does not expressly teach dimensions of the display in folded and unfolded state.

However, Katz teaches a foldable flexible display and a foldable keyboard, wherein the flexible display includes a display part having a length substantially equal to a first length of a horizontally arranged keyboard and having a second length equal to a folded keyboard as shown in fig. 5.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display of Furuki as modified by Leman to have dimensions such that the display part of the display has a length substantially equal to the first length and is foldable to another length substantially equal to a second length of the folded keyboard in which the first and second keyboard units are superposed one on top of the other through the connecting part, in order to fully cover the exterior portion of the display with the keyboard portion, and thus to prevent any scratch or damage on the exterior portion of the display.

As to **claim 21**, all of the claim limitations have already been discussed with respect to the rejection of claims 8 and 20.

As to **claim 23**, all of the claim limitations have already been discussed with respect to the rejection of claim 20.

As to **claim 25**, all of the claim limitations have already been discussed with respect to the rejection of claim 20.

As to **claim 26**, all of the claim limitations have already been discussed with respect to the rejection of claim 20.

As to **claim 28**, all of the claim limitations have already been discussed with respect to the rejection of claim 20.

As to **claim 29**, all of the claim limitations have already been discussed with respect to the rejection of claim 21.

8. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsura (US 6,377,324) in view of Miyagawa et al. (US 5,594,619, herein after "Miyagawa").

Katsura [fig. 1] teaches a display including:

a first cover member ("*main body 1*");

a second cover member ("*lid 2*") provided side by side with the first cover member;

a joint ("*hinge 3*") provided between the first and second cover members;

a flexible display sheet ("*display panel 4*") placed over the first cover member, the joint and the second cover member,

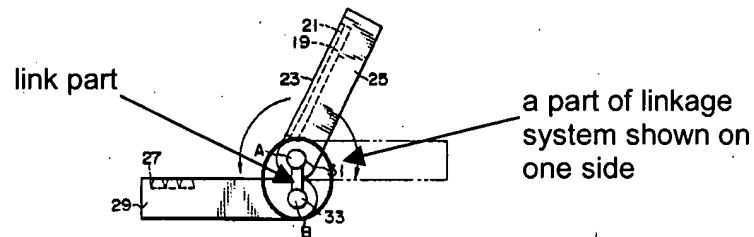
the second cover member being foldable through the joint with respect to the first cover member [fig. 2].

Katsura does not teach a linkage system including a pair of link parts which couples the first and second cover members.

However, Miyagawa [drawing 1 provided on page 8 of this Office Action, which is equivalent to fig. 7a of Miyagawa] teaches a device comprising a first cover member ("*25*") and a second cover member ("*29*"), a joint (a combination of "*31*" and "*33*") provided between the first and second cover members, a linkage system [drawing 1, which only shows a part of the

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linkage system of one side] integrally formed with the joint at both ends thereof, the linkage system including a pair of link parts which couples the first and second cover members, which allows the second cover member being slidable through the linkage system with respect to the first cover member.



Drawing 1

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the connection between the first cover member and the second cover member of Katsura to include a linkage system of Miyagawa, in order to allow more flexible folding of the displays.

Allowable Subject Matter

9. **Claim 18** is allowed.

10. **Claims 2-7, 9, 11, 13-17, 24, 31, and 32** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

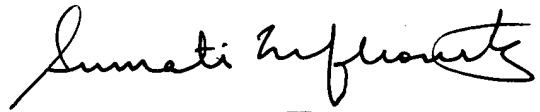
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (572) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

03/26/2007

- s.m.

A handwritten signature in black ink, appearing to read 'Sumati Lefkowitz', with a stylized flourish at the end.

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER